[0042] In a further aspect of the invention, the passage region includes traps to prevent plasma escaping from the process region into the passage or exhaust regions. Plasma or process gas flow can be controlled by a flow control flange 422 disposed on an outer surface of the substrate support 410. In this embodiment, the plasma flow or process gas flow is restricted to the space between the inner surface of the plasma confinement portion 414 of the upper liner 404 and the outer surface of the flow control flange 422. Another embodiment includes flow control flanges 412 and 422 disposed on the upper liner 404 and the substrate support 410, respectively, as shown in Figure 5. The plasma flow or processing gas flow is restricted as indicated by arrows A.

IN THE CLAIMS:

Please amend the claims as follows:

1. An apparatus for processing a semiconductor substrate, comprising:

a chamber body having an internal volume defined by first and second substantially cylindrical regions and by side walls extending substantially tangent between the first and second substantially cylindrical regions;

a substrate support disposed in the internal volume within the first substantially cylindrical region; and

an exhaust system connected to a chamber outlet disposed in fluid communication with the second substantially cylindrical region.

2. The apparatus of claim 1, further comprising:

a chamber lid mounted on the chamber body; and

an electrode disposed on the chamber lid.

3. The apparatus of claim 2, wherein the electrode comprises one or more inductive coils.

4. The apparatus of claim 2, wherein the electrode comprises one or more flat coils.

5. An apparatus for processing a semiconductor substrate, comprising:

a chamber body having an internal volume defined by first and second substantially cylindrical regions and by side walls extending between the first and second substantially cylindrical regions,

a substrate support disposed in the internal volume within the first substantially cylindrical region;

an exhaust system connected to a chamber outlet disposed in fluid communication with the second substantially cylindrical region; and

one or more chamber liners defining a substantially cylindrical processing region adjacent the substrate support and an exhaust region adjacent the chamber outlet.

6. The apparatus of claim 5, wherein the substantially cylindrical processing region is in fluid communication with the exhaust region through a passage defined by the liner.

7. The apparatus of claim 6, wherein the liner further comprises a plasma confinement flange extending inwardly around the substrate support.

8. The apparatus of claim 7, wherein the substrate support further comprises a barrier flange surrounding the substrate support.

C2

9. (Amended) The apparatus of claim 5, wherein the first substantially cylindrical region has a first diameter at least 30% larger than a second diameter of the second substantially cylindrical region.

10. (Amended) The apparatus of claim 5, wherein the first substantially cylindrical region has a first diameter at least 20% larger than a substrate support diameter.

11. (Amended) An apparatus for processing a substrate, comprising:

a chamber body having an internal volume;

one or more liners defining a substantially cylindrical processing region and a substantially cylindrical exhaust region within the internal volume, wherein the substantially cylindrical processing region communicates with the substantially cylindrical exhaust region through one or more openings defined by the one or more liners;

a substrate support disposed in the substantially cylindrical processing region; and

an exhaust system in communication with the substantially cylindrical exhaust region through an exhaust port in the process chamber.

12. The apparatus of claim 11, wherein the internal volume is defined by first and second substantially cylindrical regions and by straight side walls substantially tangent to the first and second substantially cylindrical regions, and wherein the one or more liners define the substantially cylindrical processing region in the first substantially cylindrical region and define the substantially cylindrical exhaust region in the second substantially cylindrical region.

13. The apparatus of claim 12, wherein the first substantially cylindrical region is parallel to the second substantially cylindrical region.

14. (Amended) The apparatus of claim 13, wherein the first substantially cylindrical region has a first diameter at least 30% larger than a second diameter of the second substantially cylindrical region.

15. (Amended) The apparatus of claim 13, wherein the first substantially cylindrical region has a first diameter at least 20% larger than a substrate support diameter.

16. (Amended) The apparatus of claim 11, further comprising a chamber lid mounted on the chamber body and an electrode secured to the chamber lid.

17. The apparatus of claim 16, wherein the electrode comprises one or more inductive coils.

18. The apparatus of claim 16, wherein the electrode comprises one or more flat coils.

19. (Amended) The apparatus of claim 11, wherein the one or more openings defined by the one or more liners are adjacent the substrate support.

C4

20. (Amended) The apparatus of claim 11, wherein the one or more liners comprise a plasma confinement flange surrounding the substrate support.

21. An apparatus for processing a substrate, comprising:

a chamber body comprising an internal volume and an exhaust port;

one or more liners defining an exhaust region and a processing region within the internal volume, wherein the exhaust region is co-axial with the exhaust port and the processing region is on a parallel axis with the exhaust region; and

a substrate support disposed in the processing region.

22. The apparatus of claim 21, wherein the one or more liners comprise a plasma confinement flange surrounding the substrate support.

23. The apparatus of claim 21, wherein the internal volume is defined by at least first and second substantially cylindrical regions and by straight side walls substantially tangent to the first and second substantially cylindrical regions, and wherein the one or more liners define the processing region in the first substantially cylindrical region and define the exhaust region in the second substantially cylindrical region.

24. (Amended) The apparatus of claim 23, wherein the first substantially cylindrical region has a first diameter at least 30% larger than a second diameter of the second cylindrical region.

C5

25. (Amended) The apparatus of claim 23, wherein the first substantially cylindrical region has a first diameter at least 20% larger than a substrate support diameter.

26. The apparatus of claim 21, further comprising a chamber lid pivotally mounted on the chamber body and an electrode secured to the chamber lid.

27. The apparatus of claim 26, wherein the electrode comprises one or more inductive coils.

28. The apparatus of claim 26, wherein the electrode comprises one or more flat coils.

29. The apparatus of claim 21, wherein the processing region and each exhaust region are substantially cylindrical.

30. An apparatus for configuring a processing chamber, comprising one or more chamber liners defining a substantially cylindrical processing region and a parallel substantially cylindrical exhaust region, wherein the substantially cylindrical processing region communicates with the substantially cylindrical exhaust region.

31. The apparatus of claim 30, wherein the one or more chamber liners comprise a first opening at an end of the substantially cylindrical processing region to receive a substrate support and a second opening at an end of the cylindrical exhaust region for communication with an exhaust port.

32. The apparatus of claim 31, wherein the one or more liners comprise a plasma confinement flange surrounding the substrate support.

34. (Amended) The apparatus of claim 5, further comprising:
a chamber lid mounted on the chamber body; and